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AUTHOR Conway, Terry L.; And Others
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ABSTRACT

Identifying correlates of health behavior is an important step both for understanding and modifying health behavior. This study examined five personality factors (Neuroticism, Extraversion, Openness to Experience, Agreeableness, Conscientiousness) and three dimensions of health locus of control (Internal, Powerful Others, Chance) as correlates of four dimensions of health behavior (Wellness Behaviors, Accident Control, Traffic Risk Taking, Substance Risk). Data from three independent samples (n's=1,303; 2,235; and 1,126) of randomly selected Navy personnel were analyzed. Findings indicated that Internal and Chance (but not Powerful Others) control beliefs were correlated with the personality factors. However, both personality and health locus of control beliefs were independently associated with the health behavior scales, with personality the stronger overall predictor. Findings indicated that Conscientiousness and Agreeableness were two of the most important elements of personality in predicting health behavior. These findings challenge health professionals to develop programs which use personality and control beliefs constructively so they are sources of assistance rather than resistance to change. (Author/NB)

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Personality, Health Locus of Control, and Health Behavior

Terry L. Conway[1]

Ross R. Vickers, Jr.[1]

Kenneth A. Wallston[2]

Paul T. Costa, Jr.[3]

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Terry L. Conway

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Poster presentation at the 1992 Annual Convention of the American Psychological Association, Washington, DC, August 14-18, 1992.

[1] Naval Health Research Center, P.O. Box 85122, San Diego, CA 92186-5122.
[2] School of Nursing, Vanderbilt University, Nashville, TN.
[3] Gerontology Research Center, National Institute on Aging, Baltimore, MD.

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Personality, Health Locus of Control, and Health Behavior

Abstract

Identifying correlates of health behavior is an important step both for understanding and modifying health behavior. This study examined five personality factors and three dimensions of health locus of control as correlates of four dimensions of health behavior. Data from three independent samples (n's=1,303, 2,235, and 1,126) of randomly selected Navy personnel were analyzed. Findings indicated that Internal and Chance (but not Powerful Others) control beliefs were correlated with the personality factors. However, both personality and HLOC beliefs were independently associated with the health behavior scales, with personality the stronger overall predictor. These findings challenge health professionals to develop programs which use personality and control beliefs constructively so they are sources of assistance rather than resistance to change.

Personality, Health Locus of Control, and Health Behavior

Previous research has demonstrated repeatedly that health behaviors tend to co-occur. Empirical results consistently indicate that a wide variety of health behaviors can be grouped into between two and five dimensions or clusters. An important implication of this finding is that health behaviors which cluster into the same general category may have common causes and consequences (Vickers, Conway, & Hervig, 1990). Identifying factors that have a common influence on a variety of health behaviors is an important step both for understanding causal influences on health behaviors and for developing interventions to modify these behaviors.

This study investigated the associations between several clusters of health behaviors and two sets of psychological variables that theoretically should influence health behavior: personality and health locus of control (HLOC). Recent research (Booth-Kewley & Vickers, 1991) has indicated that the "Big 5" personality factors--Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness (cf., Costa & McCrae, 1985; McCrae & Costa, 1987)--are related to health behaviors. A wide variety of previous research has indicated that beliefs regarding HLOC are related to some health behaviors, although the magnitude of association typically has been small (Wallston & Wallston, 1981). To our knowledge, however, no previous research has examined the associations between the "Big 5" personality factors and multidimensional HLOC beliefs, nor their independent associations with health behaviors.

Method

Sample

Three independent samples of randomly selected Navy personnel completed a "life-style" questionnaire as part of a longitudinal study of health and physical fitness conducted during 1986 through 1989 (see Conway, Trent, & Conway, 1989). Sample sizes were 1,303, 2,235, and 1,126 for samples 1, 2, and 3, respectively. The demographic composition of all three samples was very similar; thus, averages across the three samples are reported here. Participants were predominantly male (87%) with an average age of 29 years; nearly all had a high school diploma (93%) or Graduate Equivalency Diploma (5%), and almost half (47%) had some college education. Almost two-thirds were married (62%); 30% were single, never married. Primary ethnic groups included 76% Caucasians, 13% Blacks, and 4% Hispanics.

Personality Measures

Measures of the five-factor model of personality (cf., Costa & McCrae, 1985; McCrae & Costa, 1987) were constructed from a 38-item adjective checklist designed originally to measure Type-A Behavior (Blumenthal, J. A., et al. 1985) and from 12 adjectives designed to assess mood. One of the authors (PTC) assigned items to create rational marker scales of the five factors from the pool of 50 available items. Scale scores were constructed by averaging responses to the subgroup of adjectives representing a given factor. Participants used a 7-point response format from "never or almost never true" (scored 1) to "always or almost always true" (scored 7) to indicate how characteristic each adjective was of them. Cronbach alphas for the five scales were .88 for Neuroticism, .88 for Extraversion, .40 for Openness to Experience, .73 for Agreeableness, and .54 for Conscientiousness.

Health Locus of Control Beliefs

Multidimensional HLOC beliefs were assessed using the instrument (Form B) developed by Wallston, Wallston, and DeVellis (1978) to measure Internal, Powerful Others, and Chance beliefs about control over one's health. These scales were computed by averaging responses to six items comprising each scale. Participants used a 6-point response format from "disagree strongly" (scored 1) to "strongly agree" (scored 6). Cronbach alphas were .70 for Internal, .73 for Powerful Others, and .69 for Chance control.

Health Behavior Checklist

Participants completed a 40-item health behavior checklist as part of the life-style survey. Previous research using this checklist (Vickers, Conway, & Hervig, 1990) has indicated that these behaviors comprise four dimensions of health behavior: ***Wellness Behaviors*** (e.g., "I exercise to stay healthy," "I limit my intake of food like coffee, sugar, fats, etc."), ***Accident Control*** (e.g., "I fix broken things around my home," "I have a first aid kit"), ***Traffic Risk Taking*** (e.g., "I speed while driving," "I cross busy streets in the middle of the block"), and ***Substance Risk Taking*** (e.g., "I drink alcohol," "I smoke or use smokeless tobacco"). Respondents indicated how well each specific health behavior described his or her typical behavior using a 5-point response scale from "Not at all like me" (scored 1) to "Very much like me" (scored 5). Scale scores were constructed by averaging responses to the items comprising each of the four dimensions.

Cronbach alphas for the four scales were .80 for Wellness Behaviors, .70 for Accident Control, .76 for Traffic Risk Taking, and .25 for Substance Risk Taking.

Results

Highly consistent findings were found across all three samples; thus, results presented here represent averages of findings across the samples. Considering only correlations with a magnitude of r=.15 or greater (i.e., accounting for at least 2% of the variance), significant associations were found between Internal control and all five personality factors and between Chance control and four of the five personality factors; Powerful Others control was not correlated (average r <.15) with any of the personality factors (see Table 1).

Table 1

Significant* Correlations between Personality and Health Locus of Control

	Internal	Powerful Others	Chance
Neuroticism	-.17	---	.31
Extraversion	.22	---	-.17
Openness to Experience	.15	---	---
Agreeableness	.19	---	-.27
Conscientiousness	.21	---	-.17

* Because sample sizes were so large, a correlation had to be r ≥.15 (i.e., accounting for at least 2% of the variance) to be considered significant.

To assess whether the personality factors and the HLOC beliefs were associated with the health behavior scales, three sets of stepwise multiple regression analyses were computed. The three sets regressed the health behavior scales, respectively, on the personality factors, on the HLOC scales, and on both the personality and HLOC scales. The results of the first two sets of regressions indicate the relative strength of association between the health behavior scales and personality versus HLOC. The final set of regressions indicate whether personality and HLOC are independently associated with health behavior.

Three of the four health behavior scales were related more strongly to personality than to HLOC (see Table 2 for multiple R's averaged across the three samples). The Wellness Behaviors scale was predicted comparably by personality and HLOC. Although HLOC was a weaker predictor of three of the four dimensions of health behavior, the final set of regressions indicated that the HLOC scales accounted for a significant amount of variance in the health

Table 2
Final Multiple R's* from Regressions Predicting Health Behavior Scales

	Dependent Measures			
Predictor Sets	Wellness Behavior	Accident Control	Traffic Risk	Substance Risk
Health Locus of Control (3 scales)	.33	.24	.19	.16
Personality (5 scales)	.36	.40	.39	.21
Both HLOC and Personality Scales	.43	.43	.42	.24

* Tabled value is the average of the multiple R's across the three independent samples.

behavior scales which was independent of personality. Powerful Others and Chance control were significant predictors of all four health behavior scales. The personality factors most strongly and consistently correlated with the health behavior scales were Agreeableness, Conscientiousness, and Extraversion (see Table 3).

Table 3
Consistent* HLOC and Personality Predictors of the Health Behavior Scales

	Wellness Behavior	Accident Control	Traffic Risk	Substance Risk
Predictors	Average Betas			
Health Locus of Control				
Internal	.137	.056	----	----
Powerful Others	.173	.137	-.137	-.087
Chance	-.141	-.098	.091	.101
Personality				
Neuroticism	----	----	---	----
Extraversion	.158	.128	.207	.096
Openness to Experience	----	-.074	.093	----
Agreeableness	.136	.214	-.292	-.149
Conscientiousness	.097	.177	-.218	-.126
Average Multiple R's:	.43	.43	.42	.24

* Predictors had to be significantly related to the health behavior scales in at least 2 of the 3 independent samples to be considered "consistent" predictors. Value entered in table is the average of the significant betas across the samples.

Discussion

This study examined associations between a five-factor personality model and multidimensional HLOC as well as their association with four dimensions of health behavior. Overall findings indicated that Internal and Chance (but not Powerful Others) beliefs about control over health were correlated with the personality factors. However, both personality and HLOC beliefs were independently associated with the four dimensions of health behaviors, with personality being a somewhat stronger overall predictor than HLOC. The health behavior and personality findings presented here replicate prior work by Booth-Kewley and Vickers (1991), indicating that Conscientiousness and Agreeableness are two of the most important elements of personality in predicting health behavior. This replication and the consistency in the pattern of findings across samples is particularly impressive considering the limitations of the present personality scales constructed post hoc from an adjective checklist. These findings, coupled with those of Booth-Kewley and Vickers, suggest that Conscientiousness, Agreeableness, and Extraversion merit more attention in future research on health behavior.

Although HLOC was a weaker correlate than personality, the finding that HLOC was independently related to health behavior is of particular interest when considering possible interventions to modify health behavior. To the extent that HLOC (theoretically a product of social learning) can be targeted in behavior modification programs to change health behaviors, the present findings suggest that such programs might be effective. However, the effectiveness of modifying health behavior by changing HLOC would likely be limited in that the range of adjustments a person could make may be restricted by personality, which is relatively stable over adulthood (Costa & McCrae, 1985, 1988) and appears to be a stronger influence on health behavior. Findings such as those presented here challenge health professionals to develop programs which use personality constructively so that personality is a source of assistance rather than resistance to change.

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